

## REMARKS

The pending claims have been amended, including amendments to independent claims 12 and 37. Claims 26-36 and 45 have been canceled. Support for the amendments indicated herein may be found in Figure 1A and related discussion in the specification of the Patent Application. No new matter has been added. Claims 1-11 have been withdrawn from consideration in response to a restriction requirement imposed by the Examiner. However, Applicants respectfully reserve the right to prosecute the subject matter in the withdrawn claims, e.g., in one or more divisional or continuation applications. Pursuant to the amendments indicated herein, claims 12-25 and 37-44 are pending in the present application.

In the Office Action, claims 12-14, 20-25, 28-31, and 34-36 were rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Doerr (U.S. Patent No. 6,212,315). Claims 26-27, 37-40, and 43-44 were rejected under 35 U.S.C. § 103(a) as allegedly being obvious over Doerr. Claims 15-19, 32-33, and 41-42 were rejected under 35 U.S.C. § 103(a) as allegedly being obvious over Doerr in view of Clapp (EP 1,065,534). Claims 26-36 and 45 have been canceled, rendering the Examiner's rejections of these claims moot. Pursuant to the amendments indicated herein, the Examiner's remaining rejections are respectfully traversed.

Doerr describes a channel power equalizer for use in a wavelength-division multiplexed system. The system described by Doerr includes a wavelength selective phase shifter that includes an array of programmable phase shifters. See Doerr, col. 2, ll. 43-61 and Figure 1. However, Doerr does not describe or suggest the use of a quarter-wave plate coupled between the mirror and the electro-optic phase adjusters, as set forth in the pending claims (as amended herein).

For at least the aforementioned reasons, Applicants respectfully submit that the pending claims (as amended herein) are not anticipated by Doerr and request that the Examiner's rejections of claims 12-14 and 20-25 under 35 U.S.C. § 102(b) be withdrawn.

Moreover, it is respectfully submitted that the pending claims would not have been obvious in view of Doerr and Clapp, either alone or in combination. A finding of obviousness under 35 U.S.C. § 103 requires a determination of the scope and content of the prior art, the level of ordinary skill in the art, the differences between the claimed subject matter and the prior art, and whether the differences are such that the subject matter as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made. *Graham v. John Deere Co.*, 148 USPQ 459 (U.S. S.Ct. 1966). To determine whether the subject matter as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made, one should determine whether the prior art reference (or references when combined) teach or suggest all the claim limitations. Furthermore, it is necessary for the Examiner to identify the reason why a person of ordinary skill in the art would have combined the prior art references in the manner set forth in the claims.

In the Office Action, the Examiner alleges that using a wave plate such as a quarter wave plate in conjunction with a mirror is well known to reduce birefringence. However, Applicants respectfully submit that no document or other evidence is cited in support of this conclusory statement by the Examiner. Moreover, Doerr describes a solution to the problem of reducing the high non-linearity by using silica waveguides and thermo-optic phase shifters in the paragraph at column 6, lines 1 to 15. Applicants respectfully submit that this is clear evidence that it would not have been apparent to one skilled in the art that the use of a quarter wave plate would solve the problem of nonlinearity. To the contrary, Doerr teaches away from the invention by

proposing instead an alternative solution with silicon waveguides and thermo-optic phase shifters. As Doerr points out however (at column lines 13 to 15), this results in a solution with slow response times. Thus, it appears that Doerr was familiar with the difficulty of polarization dependence and also of the difficulty in using thermo-optic phase shifters to solve this difficulty. However, Doerr fails to teach the solution of the present invention, or indeed any solution apart from the retrograde step of using thermo-optic phase shifters. It is apparent therefore that it was not obvious to Doerr how this difficulty might be addressed and Applicants therefore respectfully submit that it would not have been obvious to a person of ordinary skill in the art. Accordingly, it is clear that the skilled person starting with Doerr would have had no motivation to change Doerr to introduce a quarter wave plate and accordingly it is respectfully submitted that the claims as amended would not have been obvious over Doerr.

Regarding the objections of obviousness under 35 USC 103(a) based on Doerr in view of Clapp, Applicants note that although Clapp may disclose a slotted phase adjuster, the skilled person starting with Doerr would have no motivation to introduce such a slotted phase adjuster into the apparatus with a single substrate proposed in Doerr. Nor would the skilled person know how to combine the waveguides of Doerr with the slots of Clapp, since the waveguides in Doerr are wet etched and then buried in InP (Doerr, column 4, line 34). Such a burial in InP would of course preclude introducing separate elements as proposed in Clapp into the waveguides proposed in Doerr. Accordingly, it is respectfully submitted that the skilled person would not be motivated to amend Doerr in view of Clapp and arrive at the subject matter of claims 15 to 19, 32-33, or 41-42.

For at least the aforementioned reasons, Applicants respectfully submit that the pending claims (as amended herein) would not have been obvious over Doerr and Clapp, either alone or

in combination. Applicants respectfully request that the Examiner's rejections of claims 15-19, 32-33, and 37-44 under 35 U.S.C. § 103(a) be withdrawn.

For the aforementioned reasons, it is respectfully submitted that all claims pending in the present application are in condition for allowance. The Examiner is invited to contact the undersigned at (713) 934-4052 with any questions, comments or suggestions relating to the referenced patent application.

Respectfully submitted,

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